

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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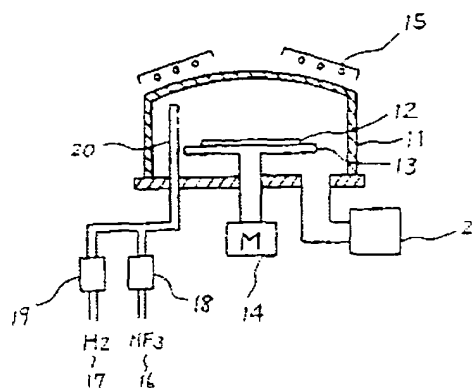
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APPLICANT : HITACHI LTD;

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H01L 29/784

TITLE : MANUFACTURE OF  
SEMICONDUCTOR DEVICE



ABSTRACT : PURPOSE: To form porous silicon free from organic contamination, by introducing gas that contains a high purity fluorine element into a reaction vessel in which a silicon substrate is arranged.

CONSTITUTION: A silicon substrate 12 in a reaction vessel 11 made of quartz is arranged on a carbon susceptor 13 covered with silicon carbide. The silicon substrate 12 is rotated together with the carbon susceptor 13 by a motor 14, and heated at 500°C or more by an infrared radiation heater 15. NF<sub>3</sub> (nitrogen trifluoride) gas 16 and hydrogen gas 17 are used, and the flow rates are individually controlled by flow rate controlling apparatuses 18, 19. The gas is introduced into the reaction vessel 11 made of quartz through a gas feeding pipe 20, and discharged by a rotary pump 21. In stead of nitrogen trifluoride gas, the following may be used; xenon fluoride (XeF<sub>2</sub>) gas, chlorine trifluoride (ClF<sub>3</sub>) gas, and fluorine (F<sub>2</sub>) gas.

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